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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,345	08/26/2003	Naoya Mashio	241940US2RD	3528

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EXAMINER

HANNAHER, CONSTANTINE

ART UNIT PAPER NUMBER

2878

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,345

Applicant(s)

MASHIO ET AL.

Examiner

Constantine Hannaher

Art Unit

2878

(Signature)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7, 8, 10, 11, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 3-6, 9, 12-15 and 18-20 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031126</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hanson *et al.* (US005486698A).

With respect to independent claim 1, Hanson *et al.* discloses an infrared detector 50 (Fig. 4) comprising a base body 52, a detector portion 62, 64 disposed above the base body configured to detect infrared (column 7, lines 2-5), a supporting beam 74, 76 supporting the detector portion above the base body, and a contactor 92, 93 configured to contact the detector portion with the base body thermally (Fig. 7 and column 7, line 63 to column 8, line 1) so as to transport thermal energy accumulated in the detector portion toward the base body.

With respect to independent claim 10, Hanson *et al.* discloses an infrared image sensor 14 (Fig. 3) comprising a base body 52, a plurality of signal lines 86 disposed on the base body (Fig. 4), a plurality of address lines 88 intersecting the signal lines (column 6, lines 22-36 and column 8, lines

28-32), a plurality of detector portions 62, 64 provided in the cross regions of the lines and each connected between the corresponding signal line and address line (Fig. 5) and each configured to detect infrared (column 7, lines 2-5), a plurality of supporting beams 74, 76 supporting each of the detector portions above the base body, and a plurality of contactors 92, 93 configured to contact each of the detector portions with the base body thermally (Fig. 7 and column 7, line 63 to column 8, line 1) so as to transport thermal energy accumulated in each of the detector portions toward the base body.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2, 7, 8, 11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson *et al.* (US005486698A) in view of Kimata *et al.* (US006031231A).

With respect to dependent claim 2, although the infrared detector of Hanson *et al.* does not provide a cavity in the base body 52, Kimata *et al.* shows (Fig. 1) that a cavity 200 in the top surface of a base body 1 in an infrared detector is known, with a supporting beam 100 supporting a detector portion 11 above the cavity. In view of the thermal isolation afforded by the cavity suggested by Kimata between a base body and a detector portion, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the base body 52 of Hanson *et al.* to provide it with a cavity. The supporting beams 74, 76 would support the detector portion 62, 64 above such a cavity.

With respect to dependent claim 7, although the detector portion 62, 64 in the infrared detector of Hanson *et al.* comprises a thermoelectric conversion portion (column 7, line 12), Kimata *et al.* shows (Fig. 1) that an infrared absorption layer 130 in a detector portion of an infrared detector is known. In view of the increased fill factor employing the infrared absorption layer as suggested by Kimata *et al.* (column 9, lines 5-14) it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the detector portion 62, 64 of Hanson *et al.* to further comprise an infrared absorption layer.

With respect to dependent claim 8, the infrared absorption layer suggested by Kimata *et al.* is laminated on the thermoelectric conversion portion (see Figs. 7, 8, and 11 at least).

With respect to dependent claim 11, although the infrared image sensor of Hanson *et al.* does not provide a plurality of cavities in the base body 52, Kimata *et al.* shows (Fig. 1) that a plurality of cavities 200 in the top surface of a base body 1 in an infrared image sensor (column 6, lines 54-57) is known, with a supporting beam 100 supporting a detector portion 11 above the respective cavity. In view of the thermal isolation afforded by the cavity suggested by Kimata between a base body and a detector portion, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to modify the base body 52 of Hanson *et al.* to provide it with a plurality of cavities. The supporting beams 74, 76 would support the detector portions 62, 64 above such cavities.

With respect to dependent claim 16, although the detector portions 62, 64 in the infrared image sensor of Hanson *et al.* comprise a thermoelectric conversion portion (column 7, line 12), Kimata *et al.* shows (Fig. 1) that an infrared absorption layer 130 in a detector portion of an infrared image sensor is known. In view of the increased fill factor employing the infrared absorption layer as suggested by Kimata *et al.* (column 9, lines 5-14) it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the detector portions 62, 64 of Hanson *et al.* to each further comprise an infrared absorption layer.

With respect to dependent claim 17, the infrared absorption layer suggested by Kimata *et al.* is laminated on the thermoelectric conversion portion (see Figs. 7, 8, and 11 at least).

Response to Submission(s)

7. This application has been published as JP 2004-85331A on March 18, 2004 and again as US 2004/0129882A1 on July 8, 2004.

Allowable Subject Matter

8. Claims 3-6, 9, 12-15, 18, 20, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Hanson *et al.* does not suggest a contact to the top surface of the detector portion or the top surface of a thermoelectric conversion portion.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aizawa *et al.* (JP 10-9949A) discloses a cantilever **13**, **17** adjacent to an infrared detector portion **11** to reduce the transmission of thermal energy.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (571) 272-2437. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Constantine Hannaher
Primary Examiner